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U.S.-China Energy Performance Contracting: An Overview of 2015 Pilot Projects

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Objectives of Recognizing Pilot Projects

- Test innovative business models and gain real-world experience in U.S. and Chinese markets.
  - Key project elements: contract models, financing methods, and M&V protocols.
- Identify best practices and expand to both markets.
- Foster deep energy savings.

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EMCA
中国节能协会节能服务产业委员会
ESCO COMMITTEE OF CHINA ENERGY CONSERVATION ASSOCIATION

EPC Pilot Projects in 2015

- 3 pilot projects received EEF recognition in 2015: Shenzhen Center for Disease Control and Prevention (CDC), Beijing SK Tower, and Tianjin Yujiabao Smart City.

- There are some additional EPC projects recognized by EMCA that are noteworthy.

Shenzhen Center for Disease Control and Prevention (CDC)

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Public building
41,800 m^2 of floorspace
7.22 million KWh/year of energy use

Participants: Coolead (ESCO), JCI (supplier), Pudong Development Bank (financer)
Contract: shared savings with 8-year term
Financing: bank loan and ESCO capital*
M&V: metering
Other: 1. working group helped connect Coolead with JCI; 2. an on-site ESCO office for O&M efficiency

4.92 million KWh/year of energy use (32% reduction*, ~ 1,470 Mt(CO_2) reduction)
¥1.8 million (~$289,000)/year of economic return
Recognized by Chinese government as demonstration EE public facility

Beijing SK Tower

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Landmark commercial building
106,000 m^2 of floorspace
17.0 million KWh/year of energy use

Participants: JCI (ESCO and supplier), MayAir China (supplier)
Contract: guaranteed savings
Financing: self-funded by host
M&V: IPMVP
Other: improved indoor air quality

8.67 million KWh/Jan-Jul* of energy use (14% reduction*, ~ 1,264 Mt(CO_2) reduction*)
¥4.4 million (~$706,000)/year of economic return
Host received government incentives for high energy efficiency and good indoor air quality of the building

Tianjin Yujiabao Smart City

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Public infrastructure
First APEC Low-Carbon Town in China
914,000 KWh/year of energy use*

Participants: Tianjin Hainatiancheng (ESCO, supplier, and financer), Current by GE (supplier)
Contract: energy service agreement
Financing: public-private partnership*
M&V: metering and calculation
Other: smart city management and control system through smart street lights

447,774 KWh/year of energy use (51% reduction, ~ 420 Mt(CO_2) reduction)

Summary

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Project	Shenzhen CDC	Beijing SK Tower	Tianjin Yujiabao
Sector	Public building	Commercial building	Public infrastructure
Contract	Shared savings	Guaranteed savings	Energy service agreement
Financing	Bank loan & ESCO capital	Self-funded by host	PPP leveraging Smart City Special Fund
Investment	¥4.39 million (~$0.705 million)	¥24.4 million (~$3.92 million)	¥200 million (~$32.1 million)
Energy Savings	2.3 million KWh 32%	1.37 million KWh (Jan – Jul) 14% (Jan – Jul)	0.466 million KWh 51%
Emissions Reduction	1,470 Mt(CO_2)	1,264 Mt(CO_2)	420 Mt(CO_2)
Innovations	1. Higher savings than estimated 2. WG's matchmaking 3. O&M efficiency 4. Chinese govt recognition	1. IPMVP 2. Landmark building 3. IAQ improvement 4. Host received govt incentives for energy efficiency and IAQ	1. Public infrastructure 2. Energy service agreement contract 3. PPP financing 4. Significant investment & energy savings rate

Lessons Learned and Recommendations

- Incentivize diverse contract models to evenly distribute risks and relieve ESCOs from heavy financial burdens.
  - E.g. Develop policy incentives for guaranteed savings model.
- Increase project access to various financing methods and opportunities.
- Promote the utilization of international M&V protocols in China.
  - E.g. IPMVP.
- Encourage the participation of real estate industry for more project opportunities, and conduct matchmaking activities among potential hosts, ESCOs, suppliers, and financers.
- Develop policy instruments to support EPC scale-up.

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Thank you!

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